

**Patent claims**

1. A method for the hydrogenation of unsaturated polymers containing double bonds, characterized in that a metal-containing colloid is first prepared under reducing conditions in the presence of an unsaturated polymer present in latex form, the  
5 colloid-containing latex mixture obtained is then hydrogenated, the metal-containing colloid is then separated from the latex and the polymer latex obtained is isolated.
2. The method as claimed in claim 1, characterized in that unsaturated polymers containing double bonds which are used are those which are composed of conjugated dienes or of from 1 to 5% by weight of conjugated dienes and from 95 to 99% by  
10 weight of unsaturated monomers containing vinyl groups.
3. The method as claimed in claims 1 and 2, characterized in that the concentration of the polymer latex to be hydrogenated is from 1 to 50% by weight, based on the aqueous emulsion.
4. The method as claimed in any of claims 1 to 3, characterized in that the pH during the  
15 preparation of the metal-containing colloid is in the range from 3 to 6.
5. The method as claimed in any of claims 1 to 4, characterized in that metal salts or metal complexes which are based on metals of group VIIIB of the Periodic Table of the Elements (Mendeleev) and of ruthenium or rhodium are used for the preparation of the metal-containing colloid.
- 20 6. The method as claimed in any of claims 1 to 5, characterized in that the hydrogenation of the colloid-containing latex mixture is carried out at temperatures in the range of from 0.1 to 100 bar and at temperatures in the range of from 25 to 100°C.